

XXI. *On the larva of Nycteribia.* By BARON R.
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[Read July 6th, 1881.]

PLATE XVI.

THROUGH the kindness of Mr. Alois Humbert, of Geneva, I came in possession lately of a statement concerning a direct observation on the oviposition of *Nycteribia*, and, not being aware of the existence, in print, of a similar statement, I deem it worth while to communicate this note. Our present knowledge on the subject of the development of *Nycteribia* is confined, as far as I know, to Professor Westwood's observations, recorded in the earliest monograph of that genus (Trans. Zool. Soc. 1835, p. 283). In order to disprove Latreille's supposition, that insects of this genus grow, like spiders or lice, Professor Westwood extracted a *Nycteribia* in the pupa state from the body of the mother insect, and thus showed that its development was similar to that of *Hippobosca*. He also gave three figures of the puparium. The next and only other statement which I can find on this subject is that of Kolenati (Horæ Entom. Ross. ii. 26, 1862), who says:—"The freshly-laid pupæ of *Nycteribia* are bluish, and assume afterwards the shape of brown, barrel-shaped puparia; an opercule bursts open when the imago is ready to escape. I have myself found such puparia in the fur of *Vespertilio*; they were fastened near the base of the hairs, and had the opercules still attached." It would appear from Kolenati's wording that he merely saw the *dry* puparia, and that the *bluish colour* of the *freshly-laid* ones was recorded by somebody else; but I have failed to discover his source of information. The same statement about the colour of the freshly-laid pupa is found verbatim in Kolenati's earlier work ('Die Parasiten der Chiropteren,' 1856, p. 33), but refers in this case to the *Pupipara* in general, not to *Nycteribia* in particular. Dufour's papers are quoted (Ann. Sc. Nat., 1831 and 1845); but these contain nothing about the pupa of *Nycteribia*.

The new observation above referred to was made by Mr. Humbert during his travels in Ceylon in 1859, and he kindly permitted me to make use of the note and sketches which he took down on the spot about it, and of which I give the translation.

“*Nycteribia*. Taken on a young *Pteropus Leschenaultii*; Trincomali, May 30, 1859. Two of these insects, placed in a glass tube, laid puparia, which, at first, had the appearance of a transparent jelly; a few minutes later they began to assume a blackish hue (that of pale ink), especially along the borders; gradually the colour became darker, and on the following day these bodies were perfectly black, at least on the upper side (fig. *a, b*). The under side, fastened to the glass, remained more transparent. The shape of these puparia was nearly oval, the upper side convex (fig. *e*). This upper side shows, *about its middle*, two stigmata (fig. *d*); at one of the extremities of the body I thought I perceived another stigmatic opening; however, I am not able to affirm it positively, because the vision through the curvature of the glass was not quite distinct. The upper side was finely marked with undulating striæ (like the skin of certain *Arachnidae*). On the under side (fig. *f*), through the transparent skin, rudiments of limbs were visible, subject all the time to a movement of contraction, resembling a vermicular motion. A light-coloured line in the middle was marked on both sides with some elongated dark spots.”

In the foregoing, the object laid by the mother-fly was called by me pupa or puparium, according to the accepted usage, although, as Prof. Leuckhart (‘*Die Fortpflanzung und Entwicklung der Pupiparen*,’ Halle, 1858), has shown, it is in reality the mature larva, which only later becomes a pupa.

Mr. Humbert’s data (sketches and description) about the larva of *Nycteribia* show the following differences from the figures of the larva of *Melophagus*, published by Prof. Leuckhart (*l. c.* iii. f. 2, 3):—1. The outline of the larva of *Nycteribia* is oval, the anterior end of which is largest; the outline of the larva of *Melophagus* is a regular ellipse. 2. The larva of *Nycteribia* does not show the nipple-shaped projection representing the head of the larva of *Melophagus*. 3. The larva of *Melophagus* has, *at the end* of the body, three pairs of stigmata, protected by a horny plate or armature; there is nothing

like the stigmatal openings in the middle of the body, on its dorsal side, as described by Mr. Humbert in the larva of *Nycteribia*. 4. Finally, it would appear, both from the sketches and the descriptions, that the development of the limbs of the future insect was further advanced in the larva of *Nycteribia*, at the moment of its parturition, than in the larva of *Melophagus*, at the corresponding stage of its existence.

It would be unfair to push further the scrutiny of Mr. Humbert's sketch, jotted down on the spot without premeditation, and to which he attached so little importance that it remained more than twenty years in his portfolio. Still there is enough *primâ facie* evidence to show that the larvæ of *Nycteribia* differ very materially from those of other *Pupipara*, and would repay further study.

EXPLANATION OF PLATE XVI.

FIGS. <i>a</i> , <i>b</i> .	Adult larva of <i>Nycteribia</i> .	Upper side.
FIG. <i>c</i> .	„ „ „	Natural size.
„ <i>d</i> .	„ „ „	Upper side, showing stigmata.
„ <i>e</i> .	„ „ „	Transverse section.
„ <i>f</i> .	„ „ „	Under side.